

This listing of claims will replace all prior versions, and listings, of claims in this application:

Listing of Claims:

Claim 1 (previously presented): An injection module assembly comprising:

 a fuel rail defining a passageway through which a fuel can flow;

 a fuel injector for delivering the fuel in the passageway to a combustion chamber of an internal combustion engine, the injector being coupled to the fuel rail at an inlet end of the fuel injector such that an interface between the fuel rail and the inlet end is substantially sealed to substantially prevent leakage of both liquid fuel and hydrocarbon emissions from the interface; and

 an overmolding covering at least a portion of the fuel rail and at least a portion of the fuel injector.

Claim 2 (original): The injection module assembly of claim 1, wherein the fuel injector is coupled to the fuel rail by laser welding.

Claim 3 (original): The injection module assembly of claim 1, wherein the fuel injector is coupled to the fuel rail by brazing.

Claim 4 (original): The injection module assembly of claim 1, wherein the fuel injector is coupled to the fuel rail by TIG welding.

Claim 5 (original): The injection module assembly of claim 1, wherein the fuel injector is coupled to the fuel rail without using a seal ring adjacent the interface.

Claim 6 (original): The injection module assembly of claim 1, wherein the fuel injector is directly connected to the fuel rail.

Claim 7 (original): The injection module assembly of claim 1, wherein the fuel injector is coupled to the fuel rail via an extension tube.

Claim 8 (original): The injection module assembly of claim 1, wherein the fuel injector is coupled to the fuel rail via a bellows.

Claim 9 (cancelled):

Claim 10 (original): The injection module assembly of claim 1, further comprising a damper inside the passageway of the fuel rail for damping pressure pulsations created by the injector.

Claim 11 (original): The injection module assembly of claim 1, further comprising an electrical connector coupled to both the fuel rail and the injector for providing electrical power to the injector.

Claim 12 (original): The injection module assembly of claim 11, wherein at least a portion of the electrical connector is overmolded.

Claim 13 (original): An injection module assembly comprising:

a fuel rail defining a passageway through which a fuel can flow;

a plurality of fuel injectors for delivering the fuel in the passageway to a respective plurality of combustion chambers in an internal combustion engine, the fuel injectors being coupled to the fuel rail such that an interface between the fuel rail and each fuel injector is substantially sealed to substantially prevent leakage of both liquid fuel and hydrocarbon emissions from the interface;

an electrical connector coupled to the fuel rail and to each of the injectors for providing electrical power to each injector; and

an overmolding covering at least a portion of the fuel rail, at least a portion of the electrical connector, and at least a portion of each fuel injector.

Claim 14 (original): The injection module assembly of claim 13, wherein the fuel injectors are coupled to the fuel rail by laser welding.

Claim 15 (original): The injection module assembly of claim 13, wherein the fuel injectors are coupled to the fuel rail by TIG welding.

Claim 16 (original): The injection module assembly of claim 13, wherein the fuel injectors are coupled to the fuel rail by brazing.

Claim 17 (original): The injection module assembly of claim 13, wherein the fuel injectors are coupled to the fuel rail without using a seal ring adjacent the interface.

Claim 18 (original): The injection module assembly of claim 13, further comprising a damper inside the fuel rail for damping pressure pulsations created by the injectors.

Claim 19 (original): The injection module assembly of claim 13, wherein the fuel injectors are directly connected to the fuel rail.

Claim 20 (original): The injection module assembly of claim 13, wherein the fuel injectors are coupled to the fuel rail via an extension tube.

Claim 21 (original): The injection module assembly of claim 13, wherein the fuel injectors are coupled to the fuel rail via a bellows.

Claim 22 (original): A method of manufacturing an injection module assembly having a fuel rail, a plurality of fuel injectors, and an electrical connector, the method comprising:

coupling the fuel injectors to the fuel rail such that respective interfaces between the fuel rail and the fuel injectors are substantially sealed to substantially prevent leakage of both liquid fuel and hydrocarbon emissions from the interfaces;

coupling the electrical connector to the fuel rail and to each of the injectors to provide electrical power to the injectors; and

overmolding at least a portion of the fuel rail, at least a portion of the electrical connector, and at least a portion of each injector to form an injection module assembly.

Claim 23 (original): The method of claim 22, wherein the injectors each define a longitudinal axis and have an outlet end and an inlet end in opposing relation along the respective longitudinal axis, and wherein each injector is coupled to the fuel rail at the inlet end.

Claim 24 (original): The method of claim 22, wherein the injectors are coupled to the fuel rail by one of laser welding, TIG welding, and brazing.

Claim 25 (original): The method of claim 22, wherein the fuel injectors are coupled to the fuel rail without using a seal ring adjacent the interface.

Claim 26 (original): The method of claim 22, further comprising inserting a damper into the fuel rail for damping pressure pulsations created by the injectors.

Claim 27 (previously presented): An injection module assembly comprising:

a fuel rail defining a passageway through which a fuel can flow;

a plurality of fuel injectors for delivering the fuel in the passageway to a respective plurality of combustion chambers in an internal combustion engine, the fuel injectors being coupled to the fuel rail at respective interfaces that are substantially sealed to substantially prevent leakage of both liquid fuel and hydrocarbon emissions from the interfaces; and

an overmolding covering at least a portion of the fuel rail and at least a portion of each fuel injector.

Claim 28 (previously presented): The injection module assembly of claim 27, further comprising an electrical connector coupled to the fuel rail and to each of the injectors for providing electrical power to each injector, and wherein at least portion of the electrical connector is covered by the overmolding.

Claim 29 (previously presented): The injection module assembly of claim 27, wherein the fuel injectors are coupled to the fuel rail by one of laser welding, TIG welding, and brazing.

Claim 30 (previously presented): The injection module assembly of claim 27, wherein the fuel injectors are coupled to the fuel rail without using a seal ring adjacent each interface.

Claim 31 (previously presented): The injection module assembly of claim 27, wherein the fuel rail is metallic.

Claim 32 (previously presented): A method of manufacturing an injection module assembly having a fuel rail and a plurality of fuel injectors, the method comprising:

coupling the fuel injectors to the fuel rail at respective interfaces; and
overmolding at least a portion of the fuel rail and at least a portion of each injector.

Claim 33 (previously presented): The method of claim 32, further comprising:

coupling an electrical connector to the fuel rail and to each of the injectors to provide electrical power to the injectors; and
overmolding at least a portion of the electrical connector.

Claim 34 (previously presented): The method of claim 32, wherein coupling the fuel injectors to the fuel rail at respective interfaces is intended to substantially seal the respective interfaces to substantially prevent leakage of both liquid fuel and hydrocarbon emissions from the interfaces, and wherein overmolding at least a portion of the fuel rail and at least a portion of each injector provides added sealing in the event the interfaces are not completely sealed by the coupling.

Claim 35 (previously presented): The method of claim 32, wherein the fuel injectors are coupled to the fuel rail by one of laser welding, TIG welding, and brazing.

Claim 36 (previously presented): The method of claim 32, wherein the fuel injectors are coupled to the fuel rail without using a seal ring adjacent the interface.

Claim 37 (previously presented): The injection module assembly of claim 1, wherein the fuel injector defines a longitudinal axis and includes an outlet end and the inlet end in opposing relation along the longitudinal axis.

Claim 38 (previously presented): The injection module assembly of claim 1, wherein the fuel rail is metallic.

Claim 39 (previously presented): The injection module assembly of claim 13, wherein the fuel rail is metallic.